

### Amendments to the Claims

Please amend Claims 1, 18, 34, and 54, cancel Claims 6-7, 24-25, 44-45, and 64-65, and add new Claim 75. Withdrawn Claims 26-27, 31, 46-47, 51, 66-67, and 71 have been amended so that they now depend on non-canceled claims.

1. (Currently Amended) An application program interface (API) embodied on one or more computer readable media, comprising:

a first group of services for integrating a plurality of content repositories into virtual content repositories (VCRs) such that the plurality of content repositories appear and behave as a single content repository, wherein the first group of services include:

first functions for authorizing access to the plurality of content repositories;

second functions for incorporating combined content of the plurality of content repositories into a hierarchical namespace including representing the plurality of content repositories as a hierarchical namespace of nodes under a single VCR root node; and

third functions for extending a VCR content model to represent information in the plurality of content repositories including sharing a common representation of combined content of the plurality of content repositories as the hierarchical namespace of nodes under a single VCR root node between the API and a content repository service provider interface (SPI) implemented by each of the plurality of content repositories; and

fourth functions for traversing the hierarchical namespace incorporating combined content of the plurality of content repositories;

a second group of services for manipulating information in VCRs;

a third group of services for searching VCRs; and

a forth group of services for configuring VCRs;

wherein the application program interface is compatible with [[a]] the content repository service provider interface (SPI) that maps operations on the VCR content model to the plurality of content repositories.

2. (Original) The application program interface of claim 1 wherein:  
the SPI provides a subset of the services available in the API.
3. (Canceled).
4. (Previously Presented) The application program interface of claim 1 wherein:  
authorizing access to the plurality of content repositories includes providing  
authentication information to the plurality of content repositories and receiving authentication  
results from the plurality of content repositories.
5. (Previously Presented) The application program interface of claim 1 wherein:  
authorizing access to the plurality of content repositories utilizes Java Authentication and  
Authorization Service.
- 6-7. (Canceled).
8. (Withdrawn) The application program interface of claim 1, wherein the second group of  
services comprises:  
first functions that enable creation of information in VCRs;  
second functions that enable reading of information from VCRs;  
third functions that enable updating of information in VCRs;  
fourth functions that enable deleting of information in VCRs;  
wherein information in VCRs maps to information in one or more content repositories;  
and  
wherein information can be contents and/or schemas.

9. (Withdrawn) The application program interface of claim 1, wherein the third group of services comprises:

first functions that enable searching content information in VCRs;  
second functions that enable searching schema information in VCRs; and  
third functions that enable configuring search result caches.

10. (Withdrawn) The application program interface of claim 9 wherein:  
searching content information in VCRs includes searching content repositories.

11. (Withdrawn) The application program interface of claim 9 wherein:  
searching schema information in VCRs includes searching content repositories.

12. (Withdrawn) The application program interface of claim 9 wherein:  
configuring search result caches includes at least one of: 1) setting the time to live for cache entries; and 2) setting the maximum number of cache entries.

13. (Withdrawn) The application program interface of claim 1, wherein the fourth group of services comprises:

first functions that enable configuring repository caches; and  
second functions that enable configuring authorization information for content repositories.

14. (Withdrawn) The application program interface of claim 13 wherein:  
configuring repository caches includes at least one of: 1) turning a cache on or off; 2) setting the maximum number of entries for a cache; and 3) setting the time to live for cache items.

15. (Withdrawn) The application program interface of claim 13 wherein:  
configuring authorization information for content repositories includes at least one of: 1)  
setting a password and user name for a repository; and 2) setting a read-only attribute for a  
repository.
16. (Withdrawn) A network software architecture comprising the API as recited in claim 1.
17. (Canceled).
18. (Currently Amended) A software architecture for a distributed computing system,  
comprising:  
a first application configured to handle requests provided to it by a second application  
over a network; and  
an application program interface (API) to provide functions used by the first application  
to access a virtual content repository (VCR), wherein the API includes:  
a first group of services for integrating a plurality of content repositories into  
virtual content repositories (VCRs), wherein the first group of services include:  
first functions for authorizing access to the plurality of content repositories;  
second functions for incorporating combined content of the plurality of  
content repositories into a hierarchical namespace including representing the  
plurality of content repositories as a hierarchical namespace of nodes under a  
single VCR root node; and  
third functions for extending a VCR content model to represent  
information in the plurality of content repositories including sharing a common  
representation of combined content of the plurality of content repositories as the  
hierarchical namespace of nodes under a single VCR root node between the API

and a content repository service provider interface (SPI) implemented by each of the plurality of content repositories; and

fourth functions for traversing the hierarchical namespace incorporating combined content of the plurality of content repositories;

a second group of services for manipulating information VCRs;

a third group of services for searching VCRs; and

a forth group of services for configuring VCRs;

wherein the API is compatible with [[a]] the content repository service provider interface (SPI) that maps operations on the VCR content model to the plurality of content repositories;

wherein the VCR integrates the plurality of content repositories such that the plurality of content repositories appear and behave as a single content repository.

19. (Canceled).

20. (Previously Presented) The software architecture of claim 18 wherein:  
the SPI provides a subset of the services available in the API.

21. (Canceled).

22. (Previously Presented) The software architecture of claim 18 wherein:  
authorizing access to the plurality of content repositories includes providing authentication information to the plurality of content repositories and receiving authentication results from the plurality of content repositories.

23. (Previously Presented) The software architecture of claim 18 wherein:  
authorizing access to the plurality of content repositories utilizes Java Authentication and Authorization Service.

24-25. (Canceled).

26. (Withdrawn – Currently Amended) The software architecture of claim ~~49~~ 18 wherein the second group of services comprises:

first functions that enable creation of information in VCRs;

second functions that enable reading of information from VCRs;

third functions that enable updating of information in VCRs;

fourth functions that enable deleting of information in VCRs;

wherein information in VCRs maps to information in one or more content repositories;

and

wherein information can be contents and/or schemas.

27. (Withdrawn – Currently Amended) The software architecture of claim ~~49~~ 18 wherein the third group of services comprises:

first functions that enable searching content information in VCRs;

second functions that enable searching schema information in VCRs; and

third functions that enable configuring search result caches.

28. (Withdrawn) The software architecture of claim 27 wherein:

searching content information in VCRs includes searching content repositories.

29. (Withdrawn) The software architecture of claim 27 wherein:

searching schema information in VCRs includes searching content repositories.

30. (Withdrawn) The software architecture of claim 27 wherein:

configuring search result caches includes at least one of: 1) setting the time to live for cache entries; and 2) setting the maximum number of cache entries.

31. (Withdrawn – Currently Amended) The software architecture of claim ~~49~~ 18, wherein the fourth group of services comprises:

first functions that enable configuring repository caches; and  
second functions that enable configuring authorization information for content repositories.

32. (Withdrawn) The software architecture of claim 31 wherein:

configuring repository caches includes at least one of: 1) turning a cache on or off; 2) setting the maximum number of entries for a cache; and 3) setting the time to live for cache items.

33. (Withdrawn) The software architecture of claim 31 wherein:

configuring authorization information for content repositories includes at least one of: 1) setting a password and user name for a repository; and 2) setting a read-only attribute for a repository.

34. (Currently amended) A method for providing a virtual content repository (VCR) representing a plurality of content repositories such that they appear and behave as a single content repository, comprising:

providing a service provider interface (SPI) to be implemented by each of the plurality of content repositories to map operations on a VCR content model to the plurality of content repositories; and

providing an application program interface (API), wherein the API includes:

a first group of services for integrating the plurality of content repositories into the VCR, wherein the first group of services include:

first functions for authorizing access to the plurality of content repositories;

second functions for incorporating combined content of the plurality of content repositories into a hierarchical namespace including representing the plurality of content repositories as a hierarchical namespace of nodes under a single VCR root node; and

third functions for extending [[a]] the VCR content model to represent information in the plurality of content repositories including sharing a common representation of combined content of the plurality of content repositories as the hierarchical namespace of nodes under a single VCR root node between the API and the content repository service provider interface; and

fourth functions for traversing the hierarchical namespace incorporating combined content of the plurality of content repositories;

a second group of services for manipulating information VCRs;

a third group of services for searching VCRs; and

a forth group of services for configuring VCRs; [[;]]

~~wherein the application program interface is compatible with a content repository service provider interface; and~~

~~providing a service provider interface (SPI) to be implemented by the plurality of content repositories;~~

~~wherein the API and the SPI are compatible and share a common content model and a common namespace.~~

35. (Original) The method of claim 34 wherein the content model includes:

a set of hierarchically related objects.

36. (Previously Presented) The method of claim 34 wherein

the namespace makes addressable the content in the plurality of content repositories.



37. (Original) The method of claim 34 wherein the API includes:  
services for performing operations on the namespace and the content model.
38. (Previously Presented) The method of claim 34 wherein the SPI includes:  
services for merging contents of the plurality of content repositories into the namespace  
and the content model.
39. (Canceled).
40. (Previously Presented) The method of claim 34 wherein:  
the content repository service provider interface provides a subset of the services available  
in the application program interface.
41. (Canceled).
42. (Previously Presented) The method of claim 34 wherein:  
authorizing access to the plurality of content repositories includes providing  
authentication information to the plurality of content repositories and receiving authentication  
results from the plurality of content repositories.
43. (Previously Presented) The method of claim 34 wherein:  
authorizing access to the plurality of content repositories utilizes Java Authentication and  
Authorization Service.
- 44-45. (Canceled).

46. (Withdrawn – Currently Amended) The method of claim ~~39~~ 34 wherein the second group of services comprises:

- first functions that enable creation of information in VCRs;
- second functions that enable reading of information from VCRs;
- third functions that enable updating of information in VCRs;
- fourth functions that enable deleting of information in VCRs;
- wherein information in VCRs maps to information in one or more content repositories;

and

- wherein information can be contents and/or schemas.

47. (Withdrawn – Currently Amended) The method of claim ~~39~~ 34 wherein the third group of services comprises:

- first functions that enable searching content information in VCRs;
- second functions that enable searching schema information in VCRs; and
- third functions that enable configuring search result caches.

48. (Withdrawn) The method of claim 47 wherein:  
searching content information in VCRs includes searching content repositories.

49. (Withdrawn) The method of claim 47 wherein:  
searching schema information in VCRs includes searching content repositories.

50. (Withdrawn) The method of claim 47 wherein:  
configuring search result caches includes at least one of: 1) setting the time to live for cache entries; and 2) setting the maximum number of cache entries.

51. (Withdrawn – Currently Amended) The method of claim ~~39~~ 34 wherein the fourth group of services comprises:

first functions that enable configuring repository caches; and  
second functions that enable configuring authorization information for content repositories.

52. (Withdrawn) The method of claim 51 wherein:

configuring repository caches includes at least one of: 1) turning a cache on or off; 2) setting the maximum number of entries for a cache; and 3) setting the time to live for cache items.

53. (Withdrawn) The method of claim 51 wherein:

configuring authorization information for content repositories includes at least one of: 1) setting a password and user name for a repository; and 2) setting a read-only attribute for a repository.

54. (Currently Amended) A machine readable medium having instructions stored thereon that when executed by a processor cause a system to:

provide an application program interface (API), wherein the API includes:

a first group of services for integrating a plurality of content repositories into virtual content repositories (VCR) such that the plurality of content repositories appear and behave as a single content repository, wherein the first group of services include:

first functions for authorizing access to the plurality of content repositories;

second functions for incorporating combined content of the plurality of

content repositories into a hierarchical namespace including representing the plurality of content repositories as a hierarchical namespace of nodes under a single VCR root node; and

third functions for extending a VCR content model to represent information in the plurality of content repositories including sharing a common representation of combined content of the plurality of content repositories as the hierarchical namespace of nodes under a single VCR root node between the API and a content repository service provider interface (SPI) implemented by each of the plurality of content repositories; and

fourth functions for traversing the hierarchical namespace incorporating combined content of the plurality of content repositories;

a second group of services for manipulating information VCRs;

a third group of services for searching VCRs; and

a forth group of services for configuring VCRs;

wherein the SPI maps operations on the VCR content model to the plurality of content repositories.

wherein the application program interface is compatible with a content repository

—— service provider interface;

—— provide a service provider interface (SPI) to be implemented by a plurality of content repositories; and

—— wherein the API and the SPI are compatible and share a common content model and a common namespace.

55. (Original) The machine readable medium of claim 54 wherein the content model includes:

a set of hierarchically related objects.

56. (Previously Presented) The machine readable medium of claim 54 wherein:  
the namespace makes addressable the content in the plurality of content repositories.

57. (Original) The machine readable medium of claim 54 wherein the API includes:  
services for performing operations on the namespace and the content model.
58. (Previously Presented) The machine readable medium of claim 54 wherein the SPI  
includes:  
services for merging contents of the plurality of content repositories into the namespace  
and the content model.
59. (Canceled).
60. (Previously Presented) The machine readable medium of claim 54 wherein:  
the content repository service provider interface provides a subset of the services available  
in the application program interface.
61. (Canceled).
62. (Previously Presented) The machine readable medium of claim 54 wherein:  
authorizing access to the plurality of content repositories includes providing  
authentication information to repositories and receiving authentication results from the plurality  
of content repositories.
63. (Previously Presented) The machine readable medium of claim 54 wherein:  
authorizing access to the plurality of content repositories utilizes Java Authentication and  
Authorization Service.
- 64-65. (Canceled).

66. (Withdrawn – Currently Amended) The machine readable medium of claim ~~59~~ 54 wherein the second group of services comprises:

first functions that enable creation of information in VCRs;

second functions that enable reading of information from VCRs;

third functions that enable updating of information in VCRs;

fourth functions that enable deleting of information in VCRs;

wherein information in VCRs maps to information in one or more content repositories;

and

wherein information can be contents and/or schemas.

67. (Withdrawn – Currently Amended) The machine readable medium of claim ~~59~~ 54 wherein the third group of services comprises:

first functions that enable searching content information in VCRs;

second functions that enable searching schema information in VCRs; and

third functions that enable configuring search result caches.

68. (Withdrawn) The machine readable medium of claim 67 wherein:  
searching content information in VCRs includes searching content repositories.

69. (Withdrawn) The machine readable medium of claim 67 wherein:  
searching schema information in VCRs includes searching content repositories.

70. (Withdrawn) The machine readable medium of claim 67 wherein:  
configuring search result caches includes at least one of: 1) setting the time to live for cache entries; and 2) setting the maximum number of cache entries.

71. (Withdrawn – Currently Amended) The machine readable medium of claim ~~59~~ 54 wherein the fourth group of services comprises:

first functions that enable configuring repository caches; and

second functions that enable configuring authorization information for content repositories.

72. (Withdrawn) The machine readable medium of claim 71 wherein:

configuring repository caches includes at least one of: 1) turning a cache on or off; 2) setting the maximum number of entries for a cache; and 3) setting the time to live for cache items.

73. (Withdrawn) The machine readable medium of claim 71 wherein:

configuring authorization information for content repositories includes at least one of: 1) setting a password and user name for a repository; and 2) setting a read-only attribute for a repository.

74. (Canceled).

75. (New) An application program interface (API) embodied on one or more computer readable media, comprising:

a first group of services that integrate a plurality of content repositories into virtual content repositories (VCRs) such that the plurality of content repositories appear and behave as a single content repository, wherein the first group of services include:

first functions that authorize access to the plurality of content repositories;

second functions that incorporate combined content of the plurality of content repositories into a hierarchical namespace including representing the plurality of content repositories as a hierarchical namespace of nodes under a single VCR root node;

third functions that extend a VCR content model to represent information in the plurality of content repositories including sharing a common representation of combined content of the plurality of content repositories as the hierarchical namespace of nodes under a single VCR root node between the API and a content repository service provider interface (SPI) implemented by each of the plurality of content repositories; and

fourth functions that traverse the hierarchical namespace incorporating combined content of the plurality of content repositories;

a second group of services that manipulate information in VCRs;

a third group of services that search VCRs; and

a forth group of services that configure VCRs;

wherein the application program interface is compatible with the content repository service provider interface (SPI) that maps operations on the VCR content model to the plurality of content repositories.